

## **REMARKS**

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

### **Claim Amendments**

Claim 16 has been amended to limit the raw material fat to an interesterified fat or a fractionated crystalline fraction thereof, or an isomerization hydrogenated fat. Support for this amendment is found on page 7, lines 21-25 of Applicant' specification; as well as the previously presented claims.

### **Consideration After Final Rejection**

Although this Amendment is presented after final rejection, the Examiner is respectfully requested to enter the amendments and consider the remarks, as they place the application in condition for allowance.

### **Patentability Arguments**

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

### **Rejection Under 35 U.S.C. § 103(a)**

The rejection of claims 16, 17, 20, 22-30 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Deffense and Tirtiaux taken together is respectfully traversed.

Regarding the "raw material fat", the Examiner states that "[n]o difference is seen between the oil of the references and the oil of the claims." (Please see page 2 of the Office Action, lines 8-9 from the bottom.) However, Applicants' amended claims limit the raw material fat to that not disclosed in the references, thus distinguishing over the cited art.

Regarding the "temperature raising step", the Examiner states that "[i]f one of ordinary skill in the art desired to selectively fractionate fat crystals, it would have been obvious to melt

the fat before crystallizing it in order to have starting oil that is free of unwanted fat crystals in it.” (Please see page 2 of the Office Action, lines 2-5 from the bottom.)

However, please note that the melting by the temperature raising step in Applicants’ claims is totally different than the melting by a temperature raising step in a conventional fractionation method.

In the fractionation of fats and oils, it is important to melt all fat crystals in a starting oil before cooling, so as to keep the temperature of the starting oil constant, followed by cooling the starting oil. Therefore, a temperature raising step is normally performed **before** cooling in a conventional fractionation method.

On the contrary, distinct from such a temperature raising step **before** cooling in a conventional fractionation method, the temperature raising step in the present application is performed **after** cooling at such a temperature that only a fraction having a relatively lower melting point is melted, while crystals of a higher-melting point fraction are not melted.

Specifically, Applicants’ claim 16 requires fractionating an interesterified fat or a fractionated crystalline fraction thereof, or an isomerization hydrogenated fat into a crystalline fraction and a liquid fraction, **then** melting a part of the crystalline fraction by raising the temperature so that G2U is melted while glycerides having a higher melting point than G2U are not melted, **then** subjecting the resulting crystalline fraction to a temperature-lowering treatment **followed** by separation.

According to a simple cooling in a conventional fractionation method, crystals of a higher-melting point fraction trap a liquid fraction, and it is quite difficult to separate a liquid fraction from crystals of a higher-melting point fraction. Nevertheless, according to the method of the present application, when a temperature raising step is performed (after cooling), a liquid fraction can be separated from crystals of a higher-melting point fraction. (Please see page 11, lines 8-17 of Applicants’ specification.)

Further, according to the method of the present application, a temperature-lowering step is performed after the temperature raising step, but before solid/liquid separation into a liquid fraction (FL) and a crystalline fraction (FF), thereby improving the purity of the higher-melting point fraction.

In brief, a conventional fractionation method, as disclosed in the references, proceeds as follows: melting → cooling → separation.

On the contrary, the method of the present application proceeds as follows: melting → cooling → temperature raising → temperature lowering → separation.

It is quite clear that these two methods are distinct from each other.

Additionally, the Examiner states, “[c]rude palm oil is generally processed in very warm climates and melting the raw material may not be necessary in all climates because the ambient temperature is so high. Further heating the oil is contemplated in Tirtiaux at column 2 of page 18. Also if one of ordinary skill in the art wanted to fractionate a hard fat instead of semi-liquid oil, it would not be possible to fractionate the fat without melting the oil as a first step.”

However, fractionation of fats and oils can hardly perform such a rough temperature control that the temperature is influenced by the ambient temperature, and strict temperature control is required. In fact, Tirtiaux discloses that “crystallization without solvent is a delicate operation... (see page 17).” That is, a delicate operation is required. In fact, even in conventional fractionation of palm oil, change in a history of a product temperature of oil during cooling largely influences a yield of fractionation, and it is difficult to maintain stable quality. Therefore, even in warm climates, a cooling step is hardly influenced by the ambient temperature. Thus, the Examiner’s position is untenable.

Lastly, “heating”, as disclosed in Tirtiaux, does not teach or suggest that a temperature raising step should be performed after cooling at such a temperature that only a fraction having a relatively lower melting point is melted, while crystals of a higher-melting point fraction are not melted.

For the reasons set forth above, it is clear that the subject matter of Applicants’ claims 16-17, 20, 22-30 and 32 is clearly patentable over the cited references. It is respectfully requested that the above-rejection be withdrawn.

**Conclusion**

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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